

Remarks

New formal drawings in compliance with 37 CFR 1.121(d) are enclosed.

Claims 1-15 have been canceled, without prejudice.

With regard to the rejection of Claims 16-18, 20, 21, and 23-30 as being unpatentable over Plumeri et al. (2,656,808) in view of Blystone (4,449,581), it is respectfully submitted that there is no suggestion to combine the references in the absence of the Applicants' teaching.

Plumeri et al. discloses a fin collar formed by a punching tool. The only method disclosed for attaching the fin collar to the tubing is "either expanding the tube or constricting the spacing projections" (Col. 6, lines 5-8).

In addition, none of the other patents cited by the Examiner for their disclosure of slits suggest the present invention. For example, Cobb discloses a fin collar with fingers capable of springing outward within their elastic limits to grip the conduit. In the right hand column on page 2, lines 14-21, the patent discloses that the first or last fin in a plurality of fins may be welded to the conduit. The remaining fins are spaced by the end of the fingers and held in position by the force of the fingers against the conduit. Frisch discloses slots 27 on a fin collar. In column 2, lines 12-28, the patent discloses that the slots 27 provide spaces into which expanded metal can be forced during welding and areas of local weakness to prevent deformation of adjacent parts of the hub 18.

In these patents the primary purpose of the slits is to provide increased fin spacing by extending the surface of the collars in the direction of the longitudinal axis of the conduit.

Blystone shows solid, annular fin collars and does not mention slits at all. Blystone teaches that fin and tube members may be joined together by any suitable bonding means including brazing. However, the teaching of brazing solid fin collars does not produce the present invention.

Providing a fin collar with slits reduces the conductive heat transfer between the conduit and the fin and therefore it would not be obvious to provide slits in a brazed fin collar to improve heat transfer performance. The Examiner cited several patents showing slits in fin collars. However, none of these patents disclose brazing for joining the fins to the conduits. The Examiner relies on a single reference from 1984 with a solid fin collar to fill in the missing

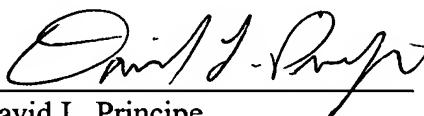
teaching. However, the 1984 patent has nothing to do with slits in collars. The Blystone patent is directed to a "dog bone" pattern on the surface of the fins and shows standard fin collars. There is no teaching or suggestion in the reference to combine it with the slit fin collars other than the applicant's teaching.

Despite the anticipated reduction in conductive heat transfer, the present invention provides benefits such as the slit providing a means to expose the tube to brazing flux for oxide removal and the fingers created by the slits providing a means to draw the clad material to the collar base during brazing. Accordingly, the resulting slit and brazed fin combination produces unexpectedly good heat transfer performance over a comparable solid fin brazed tube.

It is believed that all of the issues raised by the Examiner have been addressed herein.

If there is any fee required with this response, please charge Account No. 08-2442.

Respectfully submitted,

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Amendments to the Drawings

Applicants hereby submit the enclosed seven pages of replacement sheets.